

**ROTARY SUPPORTING BASE FOR A DISPLAY DEVICE**  
**CROSS-REFERENCE TO RELATED APPLICATION**

This application claims priority of Taiwanese Application No. 092203696, filed on March 11, 2003.

5     **BACKGROUND OF THE INVENTION**

**1. Field of the Invention**

      The invention relates to a rotary supporting base, more particularly to a rotary supporting base for a display device.

10    **2. Description of the Related Art**

      Referring to Figures 1 and 2, a conventional rotary supporting base 900 for a liquid crystal display 800 is shown to include a stationary lower ring base member 93 and a rotatable upper ring base member 91. The lower ring base member 93 is formed with two arcuate sliding slots 935 in diametrically opposite positions. The upper ring base member 91 is disposed on the lower ring base member 93 and is rotatable relative to the lower ring base member 93 about a rotary axis. The upper ring base member 91 has a bottom surface 910, and inner and outer peripheral walls 911, 913 extending downwardly from the bottom surface 910. The bottom surface 910 is formed with a plurality of positioning plates 915 arranged along the inner and outer peripheral walls 911, 913. The positioning plates 915 arranged along the inner peripheral wall 911 cooperates with the inner peripheral wall 911 so as to confine a plurality of

positioning grooves 917 engaging slidably an inner ring  
rib 937 formed on a top surface of the lower ring base  
member 93, while the positioning plates 915 arranged  
along the outer peripheral wall 913 cooperate with the  
5 outer peripheral wall 913 so as to confine a plurality  
of positioning grooves 917 engaging slidably an outer  
ring rib 937 on the top surface of the lower ring base  
member 93, as shown in Figure 1. The bottom surface  
910 of the upper ring base member 91 is further formed  
10 with two screw sockets 918 that correspond to the sliding  
slots 935 in the lower ring base member 93, respectively.  
Two screw fasteners 95 extend through the sliding slots  
935 in the lower ring base member 93 and engage the screw  
sockets 918 in the upper base member 30 to fasten the  
15 upper ring base member 91 to the lower ring base member  
93.

In the aforesaid configuration, the allowable extent  
of rotation the upper ring base member 91 depends on  
the lengths of the sliding slots 935 in the lower ring  
20 base member 93. As such, the extent of rotation of the  
upper ring base member 91 is limited when the sliding  
slots 935 are too short. On the other hand, when the  
sliding slots 935 are long enough to permit a larger  
extent of rotation of the upper ring base member 91,  
25 the structural strength of the lower ring base member  
93 is affected adversely. Furthermore, vibration of  
the upper ring base member 91 during rotation of the

liquid crystal display 800 may result in disengagement between the screw fasteners 95 and the screw sockets 918 and in rapid wearing of the screw fasteners 95.

#### SUMMARY OF THE INVENTION

5       Therefore, the object of the present invention is to provide a rotary supporting base that can reliably and firmly support a display device.

According to the present invention, there is provided a rotary supporting base for a display device. The  
10       rotary supporting base comprises:

      a stationary lower base member having a top surface formed with a ring-supporting region that is confined by an inner periphery and an outer periphery that is concentric with and that surrounds the inner periphery,  
15       the lower base member being further formed with an engaging unit on at least one of the inner and outer peripheries;

      a coupling ring plate disposed on the top surface of the lower base member at the ring-supporting region  
20       and rotatable relative to the lower base member about a rotary axis transverse to the top surface of the lower base member, the coupling ring plate having inner and outer peripheral edges, at least one of which is in sliding engagement with the engaging unit to retain  
25       rotatably the coupling ring plate on the top surface of the lower base member;

      a rotatable upper base member disposed on top of the

lower base member and coupled to the coupling ring plate for co-rotation therewith relative to the lower base member; and

5 a coupling unit provided on at least one of the coupling ring plate and the upper base member and adapted to engage an upright prop of the display device.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

Other features and advantages of the present invention will become apparent in the following detailed  
10 description of the preferred embodiment with reference to the accompanying drawings, of which:

Figure 1 is a schematic sectional view of a conventional rotary supporting base for a display device;

15 Figure 2 is an exploded perspective view of the conventional rotary supporting base;

Figure 3 is a perspective view showing the preferred embodiment of a rotary supporting base for a display device according to the present invention;

20 Figure 4 is an exploded perspective view showing the preferred embodiment;

Figure 5 is fragmentary, partly sectional schematic view showing the preferred embodiment; and

25 Figure 6 is a perspective view showing the preferred embodiment in a state of use.

#### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

Referring to Figures 3 to 6, the preferred embodiment

of a rotary supporting base 100 for a display device, such as a liquid crystal display 80, according to the present invention is shown to include a stationary lower base member 10, a coupling ring plate 20, a rotatable upper base member 30, and a coupling unit 40.

The lower base member 10, which is made of a plastic material, has a top surface 14 formed with a ring-supporting region 13 that is confined by an inner periphery 11 and an outer periphery 12 that is concentric with and that surrounds the inner periphery 11. The lower base member 10 is further formed with an engaging unit on the inner and outer peripheries 11, 12. In this embodiment, the engaging unit includes a plurality of resilient anchor members 531, each of which extends uprightly from the top surface 14 of the lower base member 10 and has a distal hook end 533 spaced apart from the top surface 14 of the lower base member 10. The distal hook end 533 of each anchor member 531 has an inclined guide surface 5331.

The coupling ring plate 20, which is made of metal, is disposed on the top surface 14 of the lower base member 10 at the ring-supporting region 13 and is rotatable relative to the lower base member 10 about a rotary axis transverse to the top surface 14 of the lower base member 10. The coupling ring plate 20 has inner and outer peripheral edges 22, 21 that are in sliding engagement with the anchor members 531 of the engaging unit to retain

rotatably the coupling ring plate 20 on the top surface 14 of the lower base member 10. The coupling ring plate 20 is formed with a plurality of fastener holes 201. The inclined guide surface 5331 of the distal hook end 533 of each anchor member 531 guides downward movement of the coupling ring plate 20 toward the ring-supporting region 13 on the top surface 14 of the lower base member 10. The distal hook end 533 of each anchor member 531 abuts against the coupling ring plate 20 to arrest upward movement of the coupling ring plate 20 away from the lower base member 10, as shown in Figure 5.

The upper base member 30, which is made of a plastic material, is disposed on top of the lower base member 10 and is coupled to the coupling ring plate 20 for co-rotation therewith relative to the lower base member 10. The upper base member 30 has a bottom surface formed with a plurality of screw sockets 309 that are registered with the fastener holes 201 in the coupling ring plate 20. In this embodiment, a plurality of screw fasteners 301 extend through the fastener holes 201 in the coupling ring plate 20 and engage the screw sockets 309 in the upper base member 30 so as to fasten the coupling ring plate 20 to the upper base member 30.

During assembly, initially, the screw fasteners 301 extend through the fastener holes 201 in the coupling ring plate 20 and engage the screw sockets 309 in the upper base member 30 to fasten the coupling ring plate

20 to the upper base member 30. Then, due to the inclined guide surfaces 5331 of the anchor members 531, the coupling ring plate 20 coupled with the upper base member 30 can be easily forced toward the top surface 14 of the lower base member 10.

The coupling unit 40 is provided on the coupling ring plate 20 and the upper base member 30, and is adapted to engage an upright prop 71 of the liquid crystal display 80 (see Figure 6). In this embodiment, the coupling unit 40 includes an outer tube segment 303, which consists of two detachable tube-confining parts, extending uprightly from the upper base member 30, and an inner tube segment 60 extending uprightly from the inner peripheral edge 22 of the coupling ring plate 20 and through the upper base member 30. In this embodiment, the inner tube segment 60 is made of metal, and has one end 601 formed with a plurality of coupling protrusions 63 that are fastened to the inner peripheral edge 22 of the coupling ring plate 20 by a plurality of screw fasteners. The inner and outer tube segments 60, 303 are configured to slidably retain the upright prop 71 of the liquid crystal display 80. The outer tube segment 303 is provided with an engaging device (not shown) therein for engaging the upright prop 71 of the liquid crystal display 80, and an operating button 307 mounted in a mounting hole 305 that is formed in the outer tube segment 303 and operable so as to control the engaging

device to engage or disengage the upright prop 71 of the liquid crystal display 80. In this embodiment, the upright prop 71 is provided with a spiral spring (not shown) therein for providing a biasing force so as to assist in adjustment of the height of the liquid crystal display 80. Since the engaging device and the spiral spring are known in the art, a detailed description of the same will be dispensed with herein for the sake of brevity.

To sum up, due to the sliding engagement between the engaging unit and the coupling ring plate 20, the rotary supporting base 100 of this invention can firmly and reliably support the liquid crystal display 80.

While the present invention has been described in connection with what is considered the most practical and preferred embodiment, it is understood that this invention is not limited to the disclosed embodiment but is intended to cover various arrangements included within the spirit and scope of the broadest interpretation so as to encompass all such modifications and equivalent arrangements.